

In the Claims:

1. (Currently Amended) A hybrid MOS-bipolar device comprising:

~~a trench MOS device having at least a source, a trench gate, a drain and a body regions, the gate and the body being shorted together and biased positively relative to the drain; and~~

a bipolar device having an emitter, a collector, a base and a gate, wherein the gate of the bipolar device is the trench gate of the MOS device.

2. (Currently Amended) The hybrid MOS-bipolar device of claim 1, further comprising a substrate and a gate oxide that insulates the trench gate from the substrate, the gate oxide having a single oxide thickness of under 600A.

3. (Currently Amended) The hybrid MOS-bipolar device of claim 1, further comprising a substrate that includes a PI region and an N drift region, the trench gate extending from a top surface of the substrate through the PI region into the N drift region, and a gate oxide that insulates the trench gate from the substrate, the gate oxide having a first thickness in a region adjacent the N drift region and having a second thickness adjacent the PI regions, the first thickness being greater than the second thickness ~~multiple oxide thicknesses for formation of gate and field oxide regions.~~

4. (Currently Amended) The hybrid MOS-bipolar device of claim 2, wherein the trench gate has having a square trench geometry as viewed from a top surface of the substrate.

5. (Currently Amended) The hybrid MOS-bipolar device of claim 2, wherein the trench gate has having a circular geometry as viewed from a top surface of the substrate.

6. (Withdrawn) A method of implementing a hybrid MOS-bipolar device that includes a trench MOS device having a source, a body and a gate, comprising shorting together the body and the gate and positively biasing an electrode connected to the shorted body and gate.
7. (Withdrawn) The method of claim 6 wherein the trench MOS device includes a gate oxide having a thickness that varies along the length thereof.
8. (Withdrawn) The method of claim 7 wherein the gate oxide thickness varies by having two substantially discrete levels of thickness.
9. (Withdrawn) The method of claim 8 wherein said hybrid MOS-bipolar device has a PI region and an Ndrift region, and wherein the gate oxide has a first gate oxide thickness adjacent said PI region and a second and thicker gate oxide thickness adjacent said Ndrift region.
10. (Withdrawn) A hybrid MOS-bipolar device comprising a PI region, an Ndrift region, a body, a gate, a drain and a source, said device being configured with its body and gate shorted together, said device including a gate oxide having a thickness of a first value adjacent said PI region and having a thickness of a second value adjacent said Ndrift region.
11. (Withdrawn) The hybrid MOS bipolar device of claim 10, wherein said gate and said body are positively biased.
12. (Withdrawn) A method of making a hybrid MOS-bipolar device comprising doping a PI region to optimize said region for said MOS device, and fabricating a gate electrode to optimize a bipolar component of said hybrid MOS-bipolar device.

13. (Withdrawn) The method of claim 12 further comprising making a gate oxide having a thickness that varies along the length thereof.
14. (Withdrawn) The method of claim 13 wherein said gate oxide thickness is greater in a region adjacent said PI region than it is in a region adjacent said Ndrift region.
15. (Withdrawn) The method of claim 14 wherein said device is constructed using a double metal process flow.
16. (Withdrawn) A hybrid bipolar-MOS device comprising a first region serving as a source and an emitter, a second region serving as a body and a base, and a third region serving as a gate, the gate and the body being shorted together and positively biased.
17. (Withdrawn) The hybrid bipolar-MOS device of claim 16 further comprising a fourth region that serves as both a drain and a collector.
18. (Withdrawn) The hybrid bipolar-MOS device of claim 17 wherein the device has a breakdown voltage of approximately 200 volts.
19. (Withdrawn) The hybrid bipolar-MOS device of claim 17 further comprising a gate oxide having a single thickness of approximately 380-600 Angstroms.
20. (Withdrawn) The hybrid bipolar-MOS device of claim 17 further comprising a gate oxide having a plurality of thicknesses.
21. (Withdrawn) The hybrid MOS-bipolar device of claim 2 having a stripe geometry.
22. (Previously presented) A hybrid MOS-bipolar device comprising:

a MOS device having a trench gate, a source, a drain and a body, the trench gate and the body being shorted together and biased positively relative to the drain;

a bipolar device having an emitter, a collector, a base and a gate formed by the trench gate, the emitter and the source being formed by a common region, the base and the body being formed by a common region, and the collector and the drain being formed by a common region;

a substrate that includes a PI region and an N drift region, the trench gate extending from a top surface of the substrate through the PI region into the N drift region;

a first electrode coupled to the trench gate, the body and the base; and

a second electrode coupled to the source and the emitter.

23. (Previously presented) The device of claim 22, further comprising a gate oxide that insulates the trench gate from the substrate, the gate oxide having a first thickness in a region adjacent the N drift region and having a second thickness adjacent the PI regions, the first thickness being greater than the second thickness.

24. (Previously presented) The device of claim 22, further comprising a third electrode coupled to the drain and collector, the third electrode located on a bottom surface of the substrate.

25. (New) The hybrid bipolar-MOS device of claim 22, wherein the device has a breakdown voltage of approximately 200 volts.

26. (New) The hybrid bipolar-MOS device of claim 22, further comprising a gate oxide that insulates the trench gate from the substrate, the gate oxide having a single thickness of approximately 380-600 Angstroms.

27. (New) The hybrid bipolar-MOS device of claim 22, wherein the device is configured to function as both a MOS device and a bipolar device in parallel.
28. (New) The hybrid bipolar-MOS device of claim 1, wherein the emitter and the source are formed by a common region, the base and the body are formed by a common region, and the collector and the drain are formed by a common region.
29. (New) The device of claim 1, further comprising:
 - a substrate that includes a PI region and an N drift region, the trench gate extending from a top surface of the substrate through the PI region into the N drift region;
 - a first electrode coupled to the trench gate, the body and the base;
 - a second electrode coupled to the source and the emitter; and
 - a third electrode coupled to the drain and collector, the third electrode located on a bottom surface of the substrate.
30. (New) The hybrid bipolar-MOS device of claim 1, wherein the device has a breakdown voltage of approximately 200 volts.
31. (New) The hybrid bipolar-MOS device of claim 1, wherein the device is configured to function as both a MOS device and a bipolar device in parallel.